

NOTE

First Report of the 13-Year Periodical Cicada, *Magicicada tredecim* (Walsh and Riley)
(Hemiptera: Cicadidae) in Maryland

Periodical cicadas (*Magicicada* spp.) are restricted to the eastern United States and attract attention from the general public because of the amazing numbers of individuals that typically emerge. Marlatt (1907) designated specific Roman numerals for the possible 17-year periodical cicada broods (I–XVII) and the possible 13-year periodical cicada broods (XVIII–XXX). The author has been engaged in determining the extent of the range of each periodical cicada brood found in the mid-Atlantic area since Brood II emerged in 1996.

Historically, only two broods of periodical cicadas have been recorded from Maryland. Brood II occurred in 1996 and was restricted to the southern Maryland counties of Calvert, Charles, and St. Mary's, and was unexpectedly found to be absent just south of the region below Mattapany Road between St. Mary's City and St. James, St. Mary's County, Maryland, south to Point Lookout, an area that appeared otherwise suitable for periodical cicadas. Brood X, the most widespread and abundant brood in Maryland occurring in the central and western sections of the state, emerged in 1987 and will soon emerge again in 2004. Brood V has been recently documented in the westernmost county in Maryland, Garrett County, in 1999 (J. Zyla, in litt.). Although no 13-year cicadas had been reported from Maryland, and no emergence of any periodical cicada brood was expected in Maryland during 1998, scattered reports of periodical cicadas during May 1998 led to a survey of the magnitude and geographical extent of this emergence. In May 1998, the emergence year for 13-year Brood XIX farther south, a single live *Magicicada* male was presented to the author by a local residence living at the end of Demko Road in

Dameron, Maryland. At first it was thought this specimen may be a two-year delayed 17-year cicada from Brood II. During the next week however, more reports of periodical cicadas surfaced. Subsequent visits to the neighborhood yielded hundreds of emerging individuals.

Because the Brood II emergence was well documented in Maryland in 1996 and its distribution mapped out, the area south of the Brood II emergence was selected for study. The same survey system used for the Brood II study was employed. Beginning with the area where the initial specimen was found, the study area was crisscrossed by vehicle and each woodlot in the study area was surveyed for the presence of *Magicicada* (represented by either specimens or sound recordings). Voucher specimens were collected at various sites and sent to the University of Michigan, Museum of Zoology, along with sound recordings for confirmation. These specimens were confirmed to be *M. tredecim* (Walsh and Riley), a 13-year periodical cicada species and not *M. septendecim* (L.), the 17-year periodical cicada from Brood II, found just north of this area. This is the first report of *Magicicada tredecim* in Maryland. Although specimens of *M. tredecim* and *M. septendecim* are difficult to distinguish, *M. tredecim* has a dominant call pitch (or frequency) of 1.0–1.1 kHz, while *M. septendecim* has one of 1.3 to 1.45 kHz (Marshall and Cooley 2000). The call recordings from the southern Maryland emergence had a dominant pitch of 1.1 kHz (D. Marshall, personal communication) confirming that the emerging cicadas were *M. tredecim* and not *M. septendecim*. In addition, the *M. tredecim* specimens were characterized by mostly orange abdominal sternites, rather than the darker coloration of *M. septendecim*.

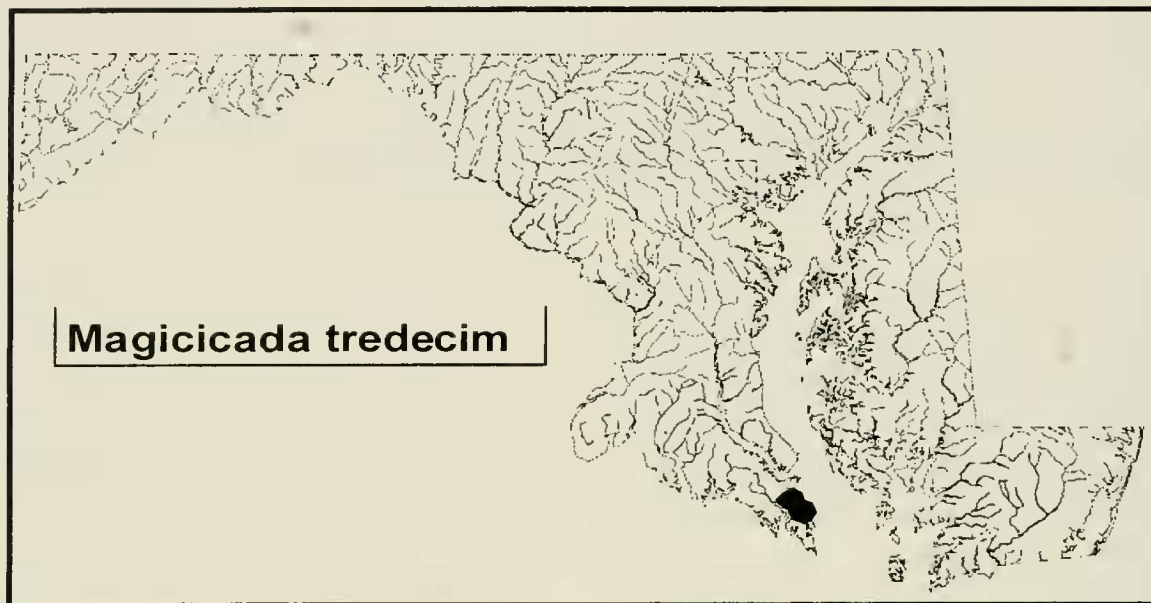


Fig. 1. The 1998 emergence of the 13-year periodical cicada (*Magicicada tredecim*) in St. Mary's County, Maryland. This represents the northernmost locality of this species in eastern North America.

The 1998 emergence of Brood XIX in Maryland was restricted to lower St. Mary's County, in and around the small town of Dameron, 8.0 miles south of Lexington Park and 1.8 miles north of Ridge. Only *Magicicada tredecim* were collected and recorded. The first occurrence was the lone individual provided to the author on May 9. The overall emergence began and became noticeable on May 15, 1998, and individuals were collected as late as June 9. The emergence density appeared similar to that observed during emergences of other *Magicicada* broods in Maryland. No chorus was heard after June 9, possibly because the weather turned unseasonably wet and cold.

Brood XIX periodical cicadas emerged in 1998 in large numbers in a very small area in St. Mary's County, Maryland. The county is isolated by water, the Potomac River on the west and the Chesapeake Bay to the east. Just north of this area, Brood II emerged in great numbers in 1996. The contact area between these two broods was Mattapany Road, which runs in a west to east direction. To the north of this road, Brood II species of *M. septendecim*, *M. septendecula* Alexander and Moore and *M. cassinii* (Fisher) occurred in 1996. South of this road, *M. tredecim* of Brood XIX was present in 1998, while *M. tredecula* Alex-

ander and Moore and *M. trecassini* Alexander and Moore were noticeably absent. There is no obvious difference between the forest types found on either side of Mattapany Road. Why a relict population of *M. tredecim* has survived in such a small area just south of and in contact with a 17-year periodical cicada brood is unknown. The nearest known location of *M. tredecim* is 60 miles due south of Dameron, Maryland, in St. James City and Charles City counties, Virginia (Sahli and Ware 1998; previously the northernmost reported localities of *M. tredecim*). This new site constitutes the northernmost known locality of Brood XIX *Magicicada tredecim* occurrence in the eastern United States (Cooley et al. 2003). The Maryland emergence is now the northernmost known occurrence of Brood XIX *Magicicada tredecim* in the eastern United States (Cooley et al. 2003) and is a considerable extension of the known geographic range of *M. tredecim*.

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LITERATURE CITED

- Cooley, J. R., C. Simon, and D. C. Marshall. 2003. Temporal Separation and Speciation in Periodical Cicadas. *BioScience* 53(2): 151–157.
- Marlatt, C. L. 1907. The Periodical Cicada. United States Department of Agriculture, Bureau of Entomology. Bulletin no. 71.
- Marshall, D. C. and J. R. Cooley. 2000. Reproductive character displacement and speciation in periodical cicadas, with description of a new species, 13-year *Magicicada neotredecim*. *Evolution* 54: 1313–1325.
- Sahli, H. F. and S. Ware. 1999. Oviposition Sites and Habitats of 13-Year Periodical Cicadas (Brood XIX) in Eastern Virginia. *Virginia Journal of Science* 50(2): 168.
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